

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today
(1) was not written for publication in a law journal and
(2) is not binding precedent of the Board.

Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DALE R. SHACKLE

Appeal No. 1997-0460
Application 08/207,990

ON BRIEF

Before CAROFF, JOHN D. SMITH and WARREN, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

Decision on Appeal and Opinion

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner finally rejecting claims 1 through 12 and 23 through 30, which are all of the claims in the application.¹

We have carefully considered the record before us, and based thereon, find that we cannot sustain the ground of rejection of the appealed claims under 35 U.S.C. § 103 over Shackle et al. (Shackle) in view of Jow et al.² (answer, pages 2.5-3). As an initial matter we interpret claims 1 and 2, which are representative of the appealed claims, in light of appellant's specification as it would be

¹ See the specification, pages 24-25, and the amendment of March 20, 1995 (Paper No. 3; pages 2-3).

interpreted by one of ordinary skill in this art, to specify, in claim 1, “[a] particulate material” that comprises at least particles of a cathode-active material coated with a “conducting polymer composition,” which conducting “polymer composition” is defined by appellant as “a doped polymer (oxidized, reduced or protonated)” (specification, e.g., pages 12-17), and, in claim 2, “[a] cathode” that comprises at least such particles. *See In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997) ; *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

The examiner, in applying Shackle to the appealed claims, admits in the statement of the rejection that the reference “does not explicitly state that the cathodic particles are coated” but finds that “the cathodic material is . . . obvious as . . . [Shackle mixes] the materials into a paste . . . [and thus] [t]he cathodic material is inherently coated when mixed with a filler and solvent” (answer, pages 2.5 and 3). Appellant submits in his brief, with respect to the examiner’s position, that the method disclosed in Shackle “cannot produce” the claimed particles, pointing out that the polymerizable materials in the ionically conductive electrolyte component of the cathode composition of Shackle will form a structural framework penetrated by an ionizable alkali, and that there is no suggestion of coating cathodic material with a conductive filler, pointing out that because polyaniline is not soluble in the low volatile aprotic polar solvents disclosed in the reference, it would remain in solution in polycarbonate or glymes if soluble therein (page 4). Appellant contrasts the method of Shackle with the coating method disclosed in the specification wherein a particle of cathode material is coated with the conductive polymer composition in the presence of a solvent prior to incorporation in a cathode paste, and contends that the process of the reference begins with the “formation of a cathode paste” without a prior coating step (*id.*, pages 4-5). Appellant further submits that there is no suggestion that the cathode material should be coated with the conductive filler for two reasons. First, Shackle teachings that good contact should be maintained between the particles of cathode material and carbon particles and, second, where V_6O_{13} and carbon particles were slurried with tetrahydrofuran to evaporation in Shackle Example 1, such a process would result in the distribution of both particles in the cathode paste and not V_6O_{13} particles

² The references are listed at page 2 of the answer.

coated with carbon particles (*id.*, page 6). Finally, appellant contends that if, in the example of Shackle, polyaniline (PAN) is employed instead of carbon particles, “the cathode paste would . . . contain a mixture of V_6O_{13} and PAN particles that are well mixed but it would not produce V_6O_{13} particles . . . coated with . . . PAN, as defined in claims 4, 5, and 27-30” (*id.*, page 6).

In response to appellants’ arguments, the examiner finds that Shackle suggests the use of “solvents with a boiling point greater than 80°C” pointing to col. 6, lines 3-19 of the reference, and contends that such solvents “overlap” with those employed by applicant in reaching the conclusion that “even if the propylene carbonate and triglyme of [Shackle] do not achieve 100% dissolution, any amount of solubility results in a coated cathode material” (answer, page 4). We find that the portion of Shackle pointed to by the examiner, col. 6, lines 3-19, discloses solvents which can be used in preparing the ionically conductive electrolyte and does not suggest the use of these solvents to combine cathode material and conductive filler which is the basis of the examiner’s inherency position as set forth in the statement of the rejection.

Further in response to appellant’s arguments, the examiner advances two additional reasons in the answer to support his position that the cathode material disclosed in Shackle is inherently coated. First, the examiner points to the disclosure in Shackle, at col. 9, lines 54-63, as teaching that “the cathode composition as well as the electrolyte layers are coated as liquids” which “suggests that the cathode active material is at least partially coated with the other components of the mix” (*id.*, page 5). And, second, the examiner submits that when “the cathode material is cured with heat, the conductive filler, as polyaniline, melts, or at least becomes more pliable,” and thus “[i]nherently, some of the cathode material will be coated by polyaniline” (*id.*, page 6).

In order to make out a *prima facie* case of obviousness on the basis that the claimed invention is inherently disclosed in Shackle, the examiner has the burden of providing in the record evidence and/or scientific reasoning to establish the reasonableness of his position that the processes disclosed in the reference produced the claimed particulate material and a cathode comprising at least that material, as the mere possibility or probability that such a result may be inherent in the processes of the reference is not sufficient. See *In re Oelrich*, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981); *Ex parte Levy*, 17 USPQ2d 1461, 1462-64 (Bd. Pat. App. & Int. 1990), and cases cited therein; *Ex*

parte Skinner, 2 USPQ2d 1788, 1788-89 (Bd. Pat. App. & Int. 1986). The examiner has not provided on this record the necessary evidence and/or scientific reasoning to establish the reasonableness of any of the three positions that he has advanced in the answer to support his finding of inherency.

With respect to the first position, advanced by the examiner in the statement of the ground of rejection, we find that there is no disclosure or suggestion in col. 5, lines 22-48, of Shackle to coat the cathode material with carbon particles or any other material, or to use a solvent to mix these particles. We further find that col. 6, lines 3-19, of the reference on which the examiner relies, discloses solvents, including polar aprotic solvents as well as less polar solvents having heteroatoms, which can be used in preparing the ionically conductive electrolyte, as we noted above. We note, in this respect, appellant's discussion in the brief of the process of Shackle Example 1 wherein particles of V_6O_{13} and carbon particles are mixed with the use of tetrahydrofuran prior to adding the remainder of the cathode composition without indication that the carbon particles coat the V_6O_{13} particles (col. 11, lines 48-58). Thus, on this record, we agree with appellant that there is no disclosure in Shackle with respect to combining *particulate* cathode material, which can be conductive polymers (e.g., col. 4, line 67, to col. 5, line 1), with the same polymers when used as *particulate* conductive fillers as suggested therein (col. 5, lines 18-21), even in the presence of solvent as in Shackle Example 1, that would have reasonably, and without speculation, suggested to one of ordinary skill in this art that the process of the reference would have necessarily inherently resulted in the claimed particulate material encompassed by claim 1 and a cathode comprising at least such material in claim 2. *Levy*, 17 USPQ2d at 1464.

With respect to the two positions advanced in the answer in response to appellant's arguments, we find that the examiner has provided little technical reasoning and no evidence to support his conclusions, which thus appear to us to be speculative in nature. *Levy, supra*.

The examiner's decision is reversed.

Reversed

MARC L. CAROFF
Administrative Patent Judge

JOHN D. SMITH
Administrative Patent Judge

CHARLES F. WARREN
Administrative Patent Judge

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